

Cloud File Storage

Product Intro

Product Introduction



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Contents

Product Intro

Overview

Features

Scenarios

System Limits

Glossary

Product Intro

Overview

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Overview

Overview

Cloud File Storage (CFS) provides a scalable shared file storage service that can be used with Tencent Cloud's services including CVM. CFS provides standard NFS and CIFS/SMB file system access protocols as well as shared data sources for multiple CVM instances or other computing services. It supports elastic capacity and performance expansion. The existing applications can be mounted for use without modification. As a highly available and reliable distributed file system, CFS is suitable for scenarios such as big data analysis, media processing, and content management.

CFS is easy to integrate, so you do not need to adjust your business structure or make complex configurations. To integrate and use CFS, just follow three steps: create a file system and mount point; launch the file system client on the server; and mount the created file system.

Features

Integrated management

CFS supports NFS v3.0/v4.0 and CIFS/SMB protocols, and provides standard POSIX access syntax (such as strong data consistency and file locking). Users can mount the file system by using the mount command for the standard operating system.

Automatic expansion

CFS can automatically expand the storage capacity of the file system based on file size without interrupting requests and applications during the process. It ensures exclusive storage resources while reducing management workload.

Security settings

CFS has high availability and persistency. Each file stored in a CFS instance has 3 redundant copies in multiple availability zones.

It supports VPCs, basic gateways, and access control.

Pay-as-you-go

CFS is billed by actual usage with no minimum spend, and does not have deployment or OPS fees. It allows CVMs to share the same storage space via the NFS or CIFS/SMB protocol, eliminating the need of purchasing other storage services or considering cache.☒

Features

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Features

CFS Features

Integrated management

- CFS provides a standard POSIX and file system access syntax (such as strong data consistency and file locking). You can mount CFS to Tencent Cloud CVM instances using mount commands for standard operating systems and NFS v3.0/v4.0 protocol.
- The CFS console allows you to quickly create and configure file systems while minimizing the workload of deploying and maintaining the file system.

Automatic expansion

- CFS can automatically expand the storage capacity of the file system based on file size without interrupting requests and applications. It ensures exclusive storage resources while reducing management workload.

Secure and reliable

- CFS is highly available and reliable, and each CFS instance has several redundant copies in multiple availability zones.
- CFS can tightly control access to the file system via POSIX permission, and combine permission groups for access control when using a basic network or VPC.

Low cost

- CFS can dynamically adjust the capacity as needed, without early storage provision. You only need to pay by usage and no minimum spend or deployment/OPS cost is required.
- CFS allows CVMs to share the same storage space via the NFS protocol, eliminating the need of purchasing other storage services or considering cache.

Application scenarios: CFS vs. CBS

Item	CFS	CBS
Throughput	Single client: 100 MB/s (max. 1.5 GB/s)	Max. 600 MB/s

Item	CFS	CBS
Shareability	Yes	No
Number of redundant copies	3	3
How to use	Use directly after mounting	Need to install a file system first

Total cost of ownership (TCO): CFS vs. CVM-built NAS

Item	CFS	CVM-built NAS
Usable storage	1 TB	1 TB
Purchased storage	1 TB	2 TB (As the disk utilization is 85%, two 1,205 GB premium cloud disks are purchased as master and slave)
Usable storage	1 TB	1 TB
Yearly storage resource cost	7,127 (Postpaid: 0.58 CNY/GB/month)	4,300 (Prepaid: 0.35 CNY/GB/month)
Yearly computing resource cost	0 CNY (Users do not need to create a file server for use of CFS)	23,744 CNY (Two CVMs with the specification of series 1-standard-8 core-32 GB memory are needed as master and slave)
Yearly TCO	7,004	28,044
Monthly cost per GB	0.58	2.28

Scenarios

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Scenarios

Enterprise file sharing

CFS provides storage services for organizations with a large number of employees who need to access and share the same data set. With CFS, admin can create a file system and make it accessible to individuals within the organization, and can also set permissions for users and groups at the file/directory level.

Big data and analysis

CFS provides the scale and performance, high throughput for computing nodes, read-after-write consistency, and low-latency file operations required for big data applications, making it particularly suitable for centralized server log processing and analysis.

Streaming media processing

For media workflows such as video editing, video production, broadcast processing, sound design, rendering, shared storage is generally used to work with large files. The strong data consistency model coupled with high throughput and shared file access can help reduce the time required for completing the above tasks.

Content management and Web services

CFS can be used as a highly persistent, high-throughput file system for content management. It stores and provides information for various applications such as websites, online distribution, and archiving.

Exclusive software environment

CFS provides the foundation for the migration of traditional service architectures to the cloud in the government, education, and medical industries. Generally, exclusive software needs to share the same file storage system, and only supports POSIX standard protocol operations.

System Limits

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System Limits

- CFS-supported file system protocols: NFS v3.0/v4.0, CIFS/SMB.
- Maximum capacity of a single file system: 160 TB.
- A file system can be mounted with a maximum of 200 computing nodes.
- Each user can have a maximum of 10 file systems in a region.
- UID and GID:
 - When NFS v3.0 protocol is used, if UID or GID of the file does not exist in the local account, UID and GID directly appear; if not, relevant user and group names appear based on the mapping relations of the local UID and GID.
 - When NFS v4.0 protocol is used, if the Linux version is later than 3.0, the UID and GID rules are the same as NFS v3.0 protocol; if not, all files' UID and GID will show up as "nobody".
 - Note: When you mount a file system to a Linux version earlier than 3.0 using NFS v4.0 protocol, it is recommended not to perform "change owner" or "change group" to the file or directory. Otherwise, its UID and GID will become "nobody".
- Supported CIFS/SMB protocol
 - Supported protocol versions: CIFS/SMB 1.0 and later are supported. But it is not recommended to mount file systems using SMB 1.0, because SMB 1.0 is not as good as SMB 2.0 and later versions in terms of performance and features. Another reason is that Windows products supporting SMB 1.0 or earlier versions have run out of Microsoft support lifecycle.
 - Users cannot use NFS and SMB to access the same file system or directly access SMB file system via WAN.
 - Read and write ACL is provided only at the file system level. No ACL is provided at the file/directory level.
 - IOCTL/FSCTL operations such as file sparsing, file compression, ENI status query, and point reparsing are not supported.
 - Alternate Data Streams is not supported.
 - Some protocol features in SMB 3.0 or later (such as SMB Direct, SMB Multichannel, SMB Directory Leasing, and Persistent File Handle) are not supported.☒



Glossary

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Glossary

Mount point

Each file system provides a mount point, which can be a destination address (i.e. an IP address) for access on a private network or a basic network. Users mount the file system to the local machine by specifying the IP of the mount point.

Permission group

A permission group is a whitelist for access control provided by the file storage. Users can create permission groups and add rules for them to allow CVMs to access the file system with different permissions. **Note that each file system must be bound to one permission group.**

NFS file system

CFS supports NFS 4.0/3.0 protocol, which is better applicable to Linux and Unix clients.

CIFS/SMB file systems

SMB (Server Message Block) protocol is an application-level communication protocol introduced by Microsoft for accessing files, printers, and other shared network resources on the network. CIFS (Common Internet File System) protocol is a public or open version of the SMB protocol. CIFS/SMB file systems can better support the access from Windows clients. CIFS/SMB protocols are now under public trial. [Click to apply for a trial.](#)